National EPA-Tribal Science Council Addressing Tribal Traditional Lifeways in EPA's Risk Assessment Policies and Procedures Workshop January 25-27, 2005 Reno, Nevada

Workshop Summary Appendix Documents

<u>Agenda</u>

Purpose and Objectives

The National EPA-Tribal Science Council (TSC) has identified short- and long-term goals for changing EPA's decision-making to better address Tribal Traditional Lifeways. This workshop is designed to begin dialogue on the long-term goal of integrating Tribal Traditional Lifeways into EPA decision-making and the short-term goal of developing recommendations for incorporating Tribal Traditional Lifeways into EPA's current risk assessment process.

- 1. Long-term objectives:
 - Discuss a new concept for assessing the health of Tribal communities that begins with preserving Tribal Traditional Lifeways, which is wholly different than EPA's current approach.
 - Develop recommendations for implementing this new approach as an alternative to the current risk assessment process.
- 2. Short-term objectives:
 - Examine the risk assessment process to identify where Tribal Traditional Lifeways can be incorporated into EPA's existing approach.
 - Develop recommendations for incorporating Tribal Traditional Lifeways into EPA's current risk assessment policies and practices.

Output

The workshop will result in a paper that provides long-term and short-term recommendations to EPA for incorporating Tribal Traditional Lifeways into EPA decisions. These recommendations may include additional scientific activities (e.g., further research, data collection, tool development/refinement) that will enhance the current EPA risk assessment paradigm.

Format

The workshop will consist of alternating intensive discussion by a recommendations development group consisting of invited tribal and EPA risk assessment practitioners and policy analysts and open dialogue among all workshop participants. The recommendations development group is tasked with developing the product from the meeting, but all participants will have the opportunity at various points in the workshop to have broader discussions on the topics that the recommendations development group is tasked with addressing. The workshop will be preceded by an optional training on EPA's risk assessment process.

Optional Training

Monday, January 24, 2005 1:00 – 5:00 pm Primer on EPA's Risk Assessment Methodology

Dennis Utterback, US EPA

This optional training will provide an overview on the risk assessment paradigm. Emphasis will be placed on the scientific basis of the risk assessment process, including health and ecological

Workshop Agenda

Tuesday, January 25

OPENING

8:00 – 8:15 Invocation and Welcome by Pyramid Lake Paiute Tribe

The invocation will be given by Dan Mosley, Environmental Specialist, PLPT The welcome will be provided by Gerry Emm, Environmental Director, PLPT

8:15 – 8:30 Opening of Workshop and Welcome by TSC Co-chairs

Dave Nelson, Cheyenne River Sioux Tribe, TSC Tribal Co-chair Rollie Hemmett, US EPA, TSC Agency Co-chair

- 8:30 9:10 Introductions of Recommendations Development Workgroup
- 9:10 9:30 Review of Workshop Goals, Agenda, and Format

David Carrillo, National Center for Cultural Healing (Facilitator)

9:30-9:45 EPA's Science Policy Council (SPC) Overview

Kerry Dearfield, US EPA, Office of the Science Advisor

9:45-10:00 EPA's Indian Program Policy Council (IPPC) Overview

Carol Jorgensen, US EPA, American Indian Environmental Office

10:00-10:15 Break

DISCUSSION OF LONG-TERM OBJECTIVES

These facilitated, open discussions about a new approach for assessing the health of tribal communities are intended for all workshop participants and will be led by workshop co-chairs, John Persell (Minnesota Chippewa Tribe), and Pat Cirone (US EPA Region 10).

10:15-10:30 Overview of Tribal Traditional Lifeways

10:30 – 12:30 Tribal Traditional Lifeways Recommendations

All participants will have the opportunity to discuss a new concept wholly different than the current EPA risk assessment approach that begins with preserving Tribal Traditional Lifeways. The group will also have the opportunity to develop recommendations for incorporating Tribal Traditional Lifeways into EPA decisions, focusing on tribal health and well being and risk prevention rather than risk assessment.

NOTE: This session may extend into the afternoon.

12:30 – 1:30 Lunch

1:30 – 1:40 Opening Remarks by Pyramid Lake Paiute Tribe Norman Harry, Tribal Chairman, PLPT

1:40 – 1:50 Overview of the Agenda and Format for Risk Assessment Discussion David Carrillo, Facilitator

DISCUSSION OF SHORT-TERM OBJECTIVES

These discussions about integrating Tribal Traditional Lifeways into EPA's current risk assessment approach will be led by the workshop co-chairs and will alternate between dialogues among the recommendations development group and the larger group of workshop participants.

1:50 – 2:10 Overview of EPA's Human Health and Ecological Risk Assessment Process

The phases of EPA's Human Health and Ecological Risk Assessment processes that will be discussed include:

- Planning and Problem Formulation Human and Ecological Conceptual Model(s)
- Profiles of Exposure and Effects Hazard Identification, Dose Response, and Exposure Analysis
- Risk Characterization Risk description and mathematical estimate(s), Summary of Uncertainties and Assumptions

2:10 - 2:25 Break

2:25 – 5:00 Planning and Problem Formulation

Members of the recommendations development group will have in-depth discussion of the planning and problem formulation phase of the risk assessment process to identify where Tribal Traditional Lifeways present challenges for the current risk assessment approach and ideas for how these Lifeways can be better incorporated. Workshop participants will be able to provide their input to the discussions of the workgroup. The outcome of this session will be recommendations incorporating Tribal Traditional Lifeways into the planning and problem formulation phase of EPA's risk assessment process.

Wednesday, January 26

8:00 – 10:00 Review of Long-Term Recommendations and Discussion of Proposed Amendments

The group will review the long-term recommendations identified in the previous day's discussions and have the opportunity to revise or elaborate on these recommendations before they are finalized by the recommendations development group.

10:00 - 10:15 Break

10:15 – 12:00 Planning and Problem Formulation (continued)

11:45 – 1:00 Lunch

1:00 – 3:00 Analytical Phase: Hazard Identification, Dose Response, Exposure and Effects Analysis

Recommendations development group members will have in-depth discussions of this next phase of the risk assessment process. They will identify where Tribal Traditional Lifeways present challenges for the current risk assessment approach and share ideas for how these Lifeways can be better incorporated. Participants will be able to provide their input to the discussions of the recommendations development group. The outcome of this session will be recommendations for incorporating Tribal Traditional Lifeways into the analytical phase of EPA's risk assessment process.

3:00 – 3:15 Break

3:15 – 5:15 Risk Characterization

The recommendations development group will have in-depth discussion of this next phase of the risk assessment process to identify where Tribal Traditional Lifeways present challenges for the current risk assessment approach and develop ideas for how these Lifeways can be better incorporated. Participants will be able to provide their input to the discussions of the recommendations development group. The outcome of this session will be recommendations for incorporating Tribal Traditional Lifeways into the risk characterization phase of EPA's risk assessment process.

Thursday, January 27

8:00 – 10:00 Review and Discuss Short-Term Recommendations and Discuss Proposed Amendments

The full group will review the shot-term recommendations identified in the previous day's discussions and have the opportunity to revise or elaborate on these recommendations before they are finalized by the recommendations development group members.

10:00 - 10:15 Break

WORKSHOP CLOSING AND NEXT STEPS

10:15 – 12:00 Discuss Post-workshop Activities and Next Steps

The TSC co-chairs will lead the group in a discussion of the next steps regarding refinement and further development of the recommendations from the meeting, including consultation and review by other Tribes and Tribal organization, the Tribal Operations Committee and Tribal Caucus, and EPA science and policy groups like the Indian Program Policy Council, Science Policy Council, and Regional and Program Offices.

12:00 – 12:30 Workshop Closing

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	Council of Nevada Nez Perce Tribe US EPA ASPH US EPA ORD Peter D. Waugh, PE, Professional LLC US EPA Region 7 Alabama Quassarte Tribal Town US EPA – ORD National Center for Environmenta 1 Assessment Walker River Paiute Tribe US EPA	Environmenta I Network South Fork Band Environmenta I Program Sfbepa@frontiernet.net Nez Perce Tribe InterTribal Council of Nevada Smith@nezperce.org InterTribe InterTribal Council of Nevada Itsmith@ndep.nv.gov Nez Perce Inter InterTribe InterTribe InterTribe InterTribal Council of Nevada Itsmith@ndep.nv.gov Nez Perce Inter InterTribe InterTribal	Environmenta 1 Network South Fork Band Environmenta 1 Program Sfbepa@frontiernet.net 1 Program Sfbepa@frontiernet.net 1 Program Sfbepa@frontiernet.net 1 Program Sfbepa@frontiernet.net NV 89815 Nez Perce Tribe InterTribal Council of Nevada Nex Perce Tribe InterTribal Council of Nevada Smith@ndep.nv.gov Nez Perce Tribe Tribe InterTribal Council of Nevada Stsmith@ndep.nv.gov Nez Perce Tribe InterTribal Council of Nevada Stsmith@ndep.nv.gov Nez Por Box 423, Lapawai, ID Stribal Stribal Tst NW, MC: 3319F, Washington, DC 20009 InterTribal Stribal Striba

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Recommendations Development Workgroup Members

National EPA- Tribal Science Council Addressing Tribal Traditional Lifeways in EPA's Risk Assessment Policies and Procedures Workshop January 25-27, 2005 Reno/Sparks, Nevada

Recommendations Development Workgroup Members

Tribal Representatives

- Fred Corey Forum on State and Tribal Toxics Action (FOSTTA)
- Jamie Donatuto Swinomish Tribe
- Susan Hanson Shoshone-Bannock Tribes
- Barbara Harper Confederated Tribes of the Umatilla Indian Reservation
- Mehrdad Khatibi Institute for Tribal Environmental Professionals (ITEP)
- Dan Kusnierz Penobscot Indian Nation
- Lori McKinnon Tribal Pesticide Program Council (TPPC)
- John Persell- Minnesota Chippewa Tribe
- Gerald Wagner Tribal Association for Solid Waste and Emergency Response (TASWER)
- Jason White Cherokee Nation
- Violet Yeaton Port Graham Environmental Department

EPA Representatives

- Mike Callahan EPA Region 6
- Patricia Cirone EPA Region 10
- Dana Davoli EPA Region 10
- Elizabeth Resek EPA Office of Prevention, Pesticides, and Toxic Substances
- Rita Schoeny EPA Office of Water

<u>Draft List of Issues & Ideas Summarized from the</u> <u>January 26th Workshop Discussion</u>

The issues and ideas captured below were based upon discussion held on the second day of a three day workshop and do not reflect additional suggested ideas and issues identified during Day 1 or Day 3 of the workshop.

Tribal Land Uses

Issues:

- Tribal uses for property are not adequately considered in the Risk Assessment and Cleanup process.
- Fish advisories prevent cultural uses of resources and impact the identity of the tribe. Substitutes or alternatives for those resources can have adverse effects on tribal communities.
- Risks from not conducting tribal activities are difficult to quantify.

Ideas:

- Establish standards/criteria that are protective of cultural uses.
- Review the water quality criteria developed by others to see if they are protective of tribal uses.
- Cleanup standards should be developed that promote community health and use of cultural resources. Suppression of traditional activities just enforces the status quo.
- New models need to include quantification of not conducting tribal activities. Other fields quantify these kinds of activities (e.g., public health field).

Exposure Scenarios

Issues:

- Current exposure scenarios do not consider unique exposures that tribes face.
- Vulnerable populations are not necessarily incorporated into regular risk assessments. Exposures do not have the same impact on members of vulnerable populations.
- Risks are looked at for individual chemicals, not cumulatively, so it is difficult to tie illnesses to particular contamination.

- Work with states to develop exposure models for establishing water quality standards.
- Develop eco-region-based scenarios that reflect unique resource usage. These scenarios could be based on historical, traditional lifeways and resource use as opposed to contemporary resource use (e.g., Treaty-based baseline).
- EPA should look at other types of populations when running models (not necessarily 500+ separate tribal cases).

- Tribes should conduct their own risk assessments, using exposure scenarios that reflect the
 tribe's own activities. Their results can be used to determine how they would like to see a site
 cleaned up.
- Provide input and data into the revision of the *Exposure Factors Handbook* and provide tribal-specific exposure scenarios for the *Exposure Scenario Document*.
- Tribal exposure scenarios should describe Tribal Traditional Lifeways and activity levels (e.g., Umatilla, Spokane).

Collaboration/Communication

Issues:

- Tribes do not get a chance to say what they want to get out of a risk assessment.
- Tribes are not consulted early in the process to discuss problem formulation, data collection, data use, etc.

Ideas:

- Get tribal and EPA risk assessment experts to dialog.
- Tribes and agencies should establish an agreement about who owns and who can access data collected through risk assessments.
- Talk to tribes about risk ethics before initiating a risk assessment (e.g., the pros and cons of risk assessment).
- Tribes should be involved as early as possible (e.g., problem formulation, study design, data collection, etc.).

Models/Tools (e.g., software packages)

Issues:

- Tribes are invisible in current pesticides models.
- Pesticide registration models do not look at effects on some plants that may be important to tribes.

- Models are just tools (e.g., TASWER model, LifeLine).
- The tribal LifeLine project incorporates people *and* their lifestyles into its model. LifeLine is being developed so that tribes can use it themselves.
- The TASWER model is a training tool that includes different exposure pathways.
- When a new chemical or pesticide is proposed for registration, use GIS data as a screening tool to see if tribes might be impacted.
- Models should reflect that tribes will increase use of resources as ecosystems are restored.
- Develop more tools for tribes on how to collect data.

Sources of Contamination

Issues:

- It is difficult to distinguish impacts from historical contamination versus ongoing or new discharges.
- Migratory species, used by tribal people, may have different levels and types of contamination that they acquire from other countries.
- Non-targeted plant species look the same as plants that have been sprayed with pesticides, so
 you do not know when they may be contaminated. Low doses of pesticides received from
 these plants may manifest themselves as other symptoms (e.g., flu, poison oak) not associated
 with the chemical source.
- When objects are repatriated, they may be contaminated as a result of their storage. Tribal communities may not be able to use those objects for their intended uses without exposures.

Ideas:

• UNEP is setting up awareness raising workshops about pollution in developing countries.

Risk Management

Issues:

- Tribes have a misconception that they will be able to use risk assessment data to determine the source of health problems.
- Need to demonstrate that your risk management approach is worth the cost.
- Decision makers want to know answers to the following questions:
 - o What is dangerous?
 - o Who will be harmed?
 - O What do we do first?

- Pre-screen sites to determine cleanup priorities.
- Involve elected officials to raise the profile of contaminated sites to encourage faster cleanup.
- Tribes should better understand the arguments that industry uses to influence EPA to help inform their actions.
- Can EPA lower acceptable contaminant levels for specific populations?
- Tribes should be involved in the risk management process.
- Identifying cultural impacts in the risk assessment provides a fuller understanding of the risks
 posed to tribes. This increased understanding of risk provides more impetus to EPA to
 exercise their Trust responsibility to protect tribes.

Data

Issues:

- The volume of data generated from risk assessments is often difficult to manage and understand, depending on tribes' level of experience with the risk assessment process (e.g., tribes are told that fish are clean, even though data show that contaminants are present).
- "Scientists" need a lot of data to assess exposures. If they do not get adequate data, they may not be able to tell you anything conclusively.

Ideas:

- Place monitors (e.g., air, water, etc.) strategically to collect data and identify impacts that might otherwise be overlooked by EPA (e.g., near schools).
- Be brutally honest with your data in identifying its benefits and limitations.
- Know what question you are asking to ensure that you are collecting the right data.
- Do not use written surveys to gather data from tribal communities. Instead, gather data through conversations.
- Get approval/buy-in/input at various levels of the tribe before collecting data.
- Let people review results of the data before it is released.
- Ethnographic data is valid data to incorporate into a risk assessment. Tribal traditional knowledge is just as valid as "western scientific" data.

Valuation/Quantification

Issues:

- Tribes may value a particular species differently (e.g., seagulls).
- Tribes do not put an economic value on many resources (e.g., plants, animals).
- Resources that do not get quantified may not "count" in the eyes of decision makers; however, some decision makers feel that qualitative data holds as much weight as quantitative.

- Put all things that are of harm in front of decision makers for their consideration.
- Some tribes are investigating how to put values on some cultural activities.

Questions and Comments from the January 24, 2005
Introduction to Risk Assessment Training Course

During the optional training session on risk assessment offered on January 24, 2005, participants identified a number of questions and concerns regarding EPA's current risk assessment process as it relates to tribes and Tribal Traditional Lifeways. The questions and the responses provided are summarized below. Please note that, in some cases, additional clarifying text was provided to the responses by the training instructors following the workshop.

General:

- Q: What about wildlife (e.g., minx, otter) that eat fish and that are covered by advisories? The Agency said that they have no authority over them. What is the trigger to get EPA concerned about these other species? Do they have to be dying? Does EPA have some numbers for a threshold? These species are important to us because they relate to our conception of ecosystems and how we view them and ourselves.
- A: The Clean Water Act does provide some statutory authority for protecting wildlife. However, under the Clean Water Act, EPA currently does not have much in the way of criteria recommendations specifically for wildlife.
- Q: EPA does human health versus ecological risk assessments, but tribes view those together. If you are looking at risk assessment (RA), how do you prioritize between human health and ecosystem impacts?
- A: We consider the results of human health and ecological risk assessments on a case-by-case basis. EPA's risk assessment frameworks are set up so that the human health and ecological risk assessments are generally done separately, and then during the risk management piece, both types of assessments may be considered together.
- Q: What do you mean by "political considerations" and "social factors?" How does EPA prioritize actions to protect human health (e.g., spraying for mosquitos) that have negative ecological impacts (e.g., eliminating food for other animals)?
- A: An example is the case with the West Nile Virus. This might generate lots of political pressure for the Agency to do something. The process is not all political, but can be influenced by public and political interest.
- Q: Is the RA decision only science based? EPA should make it clear that the process is based on science *and* politics.
- A: The risk assessment should be based on science. Other considerations come into play during the risk assessment phase. Transparency is key. The Agency should make it clear how the decision was made.
- Q: What is the difference between RA and risk characterization?
- A: RA is the whole process and includes hazard assessment, exposure assessment, dose-response

assessment, and risk characterization. Risk characterization pulls together information from the previous three steps into an overall description of the risk that includes uncertainty.

- Q: How long does a normal RA take?
- A: The time varies, depending on data availability and the nature of the decision.

Exposure Terminology:

- O: Does the Agency address in-utero exposure?
- A: We will get into that later, in more detail. These are really the basic concepts right now.
- O: Does dose response apply only to acute exposure (vs. chronic exposure)?
- A: No, it can apply to any scenario.

Threshold Effects:

- Q: Is the no observed adverse effect level (NOAEL) a "safe" level? What about cultural differences, sensitive populations, diet, and use differences?
- A: No, the NOAEL is a starting point for determining a level considered protective of human health. The level used for protecting human health, the Reference dose (RfD), is lower than the NOAEL and takes into account various uncerainty factors.
- Q: What about different metabolisms in different people?
- A: I do not know whether there have been studies on that or not.
- Q: Sometimes it is frustrating to look at this issue because we know we are exposed to multiple chemicals and that EPA only looks at individual chemicals when determining safe levels. We do not just eat one chemical though, we eat the whole fish. What looks okay in the lab may not be realistic.
- A: You're right that the public is exposed to multiple chemicals, but the Agency has historically only examined the risk of one checmical at a time because science—simply had not advanced significantly to permit us to combine risks from chemicals. This is changing. EPA has developed a policy for looking at mixtures of chemicals, and we are starting to do cumulative risk assessmeths for chemicals that have a common mode of action in the body; two examples are dioxins and organophosphate pesticides.

- Q: Will you address risk alternatives (e.g., precautionary principle or a health-driven process versus the harm-driven process)?
- A: Congress has given us mandates on how to regulate various parts of human health and the environment, through balanacing risk and benefits to society, using the best available technology or looking only at risk. So, by law, different parts of the Agency handle risk differently.
- Q: Does EPA look at whether genes are affected by certain chemicals?
- A: We use models to look at the whole effects, but I do not know much about that. Proteomics and genomics are new areas for the Agency. We do not know how to use them yet in RA, but it is an evolving field. Everything that the Agency is doing in RA is constantly evolving.
- Q: Are reference dose and reference concentration synonymous?
- A: The reference dose is what you ingest. Reference concentration is in the air or the water, but they are similar concepts.
- Q: Some Native American people have different levels of exposure. Does the Agency differentiate?
- A: EPA can look at exposures to different groups and estimate those. I am not sure how much EPA is able to look at individual communities (e.g., those living in urban environments with multiple exposures). With respect to ingestion, what is typically done is to use national consumption levels. To get to the tribal level, we would really need to get the individual data for that tribe's consumption. We do understand that people are exposed differently.
- Q: What is the Agency doing about flame retardants? We get levels of them on our vegetation.
- A: We are aware of high exposures, but we do not know where they are coming from or understand the toxicity yet. In some cases, we are trying to decrease the use of chemicals.
- Q: Can you explain the cancer risk of 1-in-1-million in excess of background?
- A: We estimate that your chance of getting cancer is 1-in-4. We then add the risk of a specific chemical onto that.
- Q: Does the background level for cancer reflect historic levels (e.g., 100-200 years ago)? If not, how do we know that cancer rates were not much lower than 1-in-4?
- A: That does not take into account the improvement in diagnostics. This information is pretty concrete.

- Q: But, we could be on a slippery slope because of changing numbers. If the background risk of cancer changes to 1-in-3 or 1-in-2, then we are not doing something right. Has RA brought this background number down?
- A: That's a difficult question to answer since there have been improvements in diagnosis and reporting of illness over time. The Centers for Disease Control and Prevention (CDC) are concerned with that, and I think they would be the best source of information.

Comment: I work for Region 9 as a toxicologist. In California, 736 cancer deaths per million people occur from air pollution alone. This does not include emphysema or asthma, but only reflects cancer. So the numbers are out there with respect to cancer trends.

(Cancer rates are available from the American Cancer Society website at: http://www.cancer.org/downloads/STT/CAFF2005PWSecured4.pdf.)

- Q: If you have extreme pollution in other areas (e.g., mountains or snowfall), do you take that into account?
- A: That kind of information is important for understanding local effects.
- Q: Is there qualitative description of uncertainty?
- A: Yes, EPA tries to quantify uncertainty by using probability distributions, for example, but that's not always possible. So, sometimes we have to make qualitative statements that guide the risk managers. For example, it's important to note when a hazard assessment or exposure assessment is based on only a few studies where the research methods may have been questionable or small sample size.
- Q: What type of salmon are you using in your examples?
- A: They are only hypothetical.

Comment: Because the salmon in the lower 48 are different than Alaskan salmon and wild salmon differ from farmed. For example, EPA changed the levels of protection for trout and now we have a very slim margin before the fishery is destroyed. It frustrates me to hear about these ideas at this level when they have serious impacts on our homes. This is very frustrating.

Comment: EPA also uses incorrect assumptions (e.g., 3 meals per week instead of 17, which is

more accurate).

Comment: We are often talking about RA after the fact (e.g., after the spill or release). How do we

factor all of these things together when the damage has already been done?

A: I cannot speak to these specific situations. Hopefully we can work on this during the week to get closer to the ideal.

Q: How realistic is it that what we have to say will change the process that affects our lives?

A: We would not be having this workshop if we did not think it would help. I would not be the one to make the change. That's not my job. But, people at EPA want to make improvements.

- Q: Is there a RA done prior to new programs or introduction of new products?
- A: RA can be done looking backwards or looking prospectively. EPA's Office of Pesticides requires a risk assessment for all new pesticides before they can go to market.

Ecological Case Study:

- Q: Is it appropriate to look at concentrations of various chemicals in organisms during ecological risk assessments? We are concerned about the viability of species, but also of the other animals and humans that eat them.
- A: EPA looks at fish contaminated with a variety of things. Longer-lived fish can present a bigger problem for humans. We are concerned about where those contaminants come from (e.g., flame retardants). EPA is not able to combine those two aspects.
- Q: Is EPA ignoring the ecological risks if it just issues an advisory and does not eliminate the source of the contamination (e.g., fish contaminated with mercury and covered by an advisory are still consumed by animals)?
- A: When EPA evaluates surface water, we look at the threat to drinking water, fisheries contamination, and ecological targets.
- Q: Does EPA study fish or relationships between stressors and endpoints?
- A: In some cases, EPA uses existing data and in others EPA conducts its own studies.
- Q: Is a conceptual model like looking at a pathway?
- A: It enables you to see how the pieces fit together (e.g., nutrients affect algae, algae affects eelgrass beds and uses up dissolved oxygen (DO) that affects fish).

Summary of Comment Cards Collected from Participants During the Workshop

General Suggestions for Workshop:

- Clarify/change the terminology of objectives of this meeting to: ideas from concerned tribal
 "persons" about risk assessment processes/procedures with regard to tribes/Indian Country, not
 "recommendations from this meeting. Also, define process—taking into account tribe and EPA
 processes. Be specific.
- TSC send these recommendations/ideas to tribes (all 570) for comment before it could be submitted to EPA. Also, risk assessment is related to hazardous assessment, so we recommend that TSC looks at recommendations/ideas to change the Hazard Ranking System (HRS) as well.
- It sounds life EPA is trying, even if unconsciously, to push tribes into "old" molds of one model, specific defaults...this workshop is to come up with creative, new approaches. Refrain from stepping back into the "old" way of doing things.
- It seems to me that the discussion keeps coming back to exposure factors. Is it possible to make recommendations about how to alter the planning phase without considering the exposure factors? (For instance, what are we going to sample? What will be the spatial extent of sampling—at a Superfund site for instance?) What I'm trying to get at is: is it feasible and helpful to solicit recommendations for each component of the risk assessment process separately? Or should you ask: How should the risk assessment process be transformed and what are the implications for each component? (Personally, I think the exposure assessment should be the major focus of the discussion.)

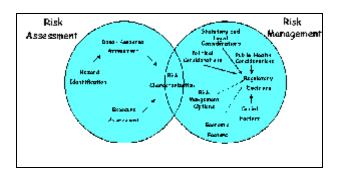
Comments Regarding Risk Communication:

- EPA's risk assessment doesn't allow for basic level explanation of scientific components, There are the equations for risk with the outcome of chances. But how do we explain to grandma that the grass she grazes her livestock on may affect her because of her ingestion of beef? More communication of scientific components is needed. The Agency for Toxic Substances and Disease Registry (ATSDR) also needs to be at the table.
- What information is available for the specific contamination or hazard? How much information is available to the public? How can the information be generalized for the public to understand the issues?

Comments Regarding Risk Assessment: -

General Comments:

In regard to a graphic on the use of risk assessment in relation to risk management used by Pat Cirone during the workshop (see graphic), one participant wrote of the "scientific circle," represented by the circle on risk assessment to the right that the "problem is that there us no mention of traditional knowledge of plants, animals, or ecosystem nor does it mention traditional



lifeways in the 'scientific circle'." The participant suggested that "Maybe put traditional knowledge and traditional lifeways as a component in the scientific circle. Also, give the component equal weighting."

- What does the group think of developing a risk assessment framework that provides an integrated, adequate, and holistic consideration of humans and the natural world that addresses cultural, social, subsistence, economic, and spiritual practices.
- Push for policy that requires EPA (federal agencies) to conduct each risk assessment with individual tribes on a case-by-case basis. Then EPA would form agreements to conduct each risk assessment with individual tribes on a case-by-case basis.
- Is there only one single type of assessment model? Is there some type of a simplified model for tribes or is it all according to government regulations?
- Risk assessment today (i.e., the current risk assessment paradigm) should become cleanup assessment with specifics to Indian Country and Indian Program.
- How are we going to protect our traditional knowledge (e.g., there are certain herbs, plants, and sites that are sacred and tribes/healers need protection but may not reveal that knowledge. Is there a way for protection (an umbrella) without revelation? [Tribes do not want to be in the public record because of the Freedom of Information Act (FOIA)] We need to find that umbrella.
- Why can't EPA, no matter what program, go to every tribe? Do they do that now? No, yes, maybe, but they should! To make change, there are sacrifices, some more for others. When will EPA make sacrifices for change?
- What about chemicals not under U.S. EPA's regulations (i.e., pharmaceuticals and cosmetics)?
- There is the risk assessment-driven process and health-driven process. Why not add a tribal/cultural-driven process?
- How can tribes have the ability (on their own or in conjunction with EPA) to determine their own health and safety standards and authorization of use on or affecting tribal lands and traditional areas (including for example consideration of cumulative effects)?
- Does the group have any suggestions for how tribes can be better involved in any (risk assessment) decision making that affects their people, land, and rights?

Planning and Problem Formulation:

- Tribes do not have staffing in many instances to characterize and assess a contamination. Will
 U.S. EPA have other federal agencies assist? Many federal agencies require statistics that may
 not even be available. How will federal agencies assist a tribe?
- Ask elders at the outset: (1) What do they suspect might be going on in the situation? (2) What are their foremost concerns about the situation? (3) How would they like to be informed and/or involved as the project proceeds? These efforts are needed to build trust and alliance.
- How can tribal interests be incorporated into planning and problem formulation (e.g., "pristine" environment as baseline or goal in contrast to current conditions as baseline).

Analysis Phase:

- It appears that a reasonable approach (for hazardous waste site cleanup) would be to survey/interview tribe members about how much they eat or how often they hunt on site. This is not a national-level resolution.
- Tribal populations need environmental risk, hazards ,exposures, pathways of cause and effect
 whether it be tools, guidance, etc. Example: plants are vascular and draw up contaminants in
 their root systems. Some plants are sensitive to certain contaminants while others thrive.
 Whether the contaminants be radiation, a chemical, or biological component. Pathways need to
 be defined.
- When conducting risk assessments when water quality is an issue, <u>in addition</u> to looking at water quality standards (in they are met/exceeded), biological assessments (looking at fish, benthic and macro invertebrates, etc.) should also be conducted. Also, a comparison of reference (or non-impacted) sites to impacted sites or comparison of upstream sites to downstream (impacted) sites is needed. Also, endocrine disruptors should be examined.
- A new pollution prevention tool with specifics to Indian Country and the Indian Program is needed.
- Define "most vulnerable," one person's definition can mean something different than another. There can be no gray area in this process. Specifics are necessary.
- Question on pesticides (national) decision making: what are standards for decision (e.g., LC50 or LD50 studies on species may or may not be applicable to tribal lands/traditional areas an cultural values)?

Risk Characterization:

• How can the effects of specific pollutants be attributed to specific tribal traditional knowledge or observations (i.e., what effects could a tribal elder attribute to mercury pollution)?

Other Comments:

- Cultural Aspects:
 - 1. The Earth is a living component.
 - 2. Water is as precious as our own blood.
 - 3. Air fills our lungs for life.

- 4. Food (animals and plants) sustains our basic needs.
- 5. The water, soil, air come in a circle, connecting because all recycles (good and bad chemicals, bacteria, molds, plants, etc.)
- 6. Changes to the environment are either accepted or unaccepted.
- 7. What will change our balance of life?
- 8. Keeping harmony for oneself is important and extending to our family then to the community we live in.

Coal Combustion Waste:

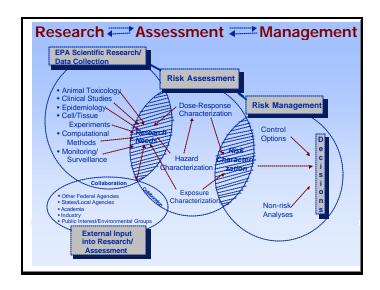
- 1. Currently exempt from Resource Conservation and Recovery Act (RCRA).
- 2. Waste is a by-product of different types of coal (bituminous level).
- 3. Waste is not well defined to what releases are...mercury, selenium, etc.
- 4. Toxic levels are not known.
- 5. How can risk assessment to tribes be known...health evaluations for upper respiratory evaluations?

• Contaminated Sites on Tribal Lands:

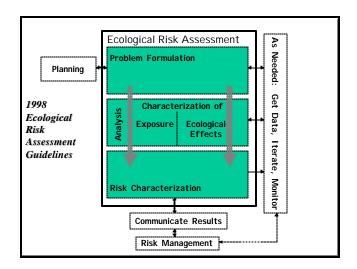
- 1. If a site was not managed during operation, any contaminated industrial hardware could have left a site.
- 2. Hazardous signs at a site were not able to express a danger.
- 3. The contaminated materials has unknown exposure risk to the individual who took the contaminated material.
- 4. Risk assessment to the individual and their family most likely will not be known because local clinics and hospitals do not look for specific health effects in relation to a previous site containing hazardous or toxic substances.

Appendix 7 Risk Assessment Diagrams

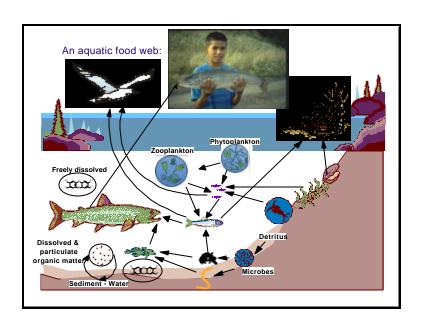
Human Health Risk Assessment Structure:



Ecological Risk Assessment Structure:



Aquatic Fate and Transport Model:



U.S. EPA Science Policy Council Description

U.S. EPA Science Policy Council

Mission and Purpose:

In 1993, Administrator Carol Browner formed the Science Policy Council (SPC). The SPC replaced the Risk Assessment Council that was charged to oversee virtually all aspects of the Agency's risk assessment process. The goal of the SPC is to integrate policies which guide Agency decision-makers in their use of scientific and technical information. The SPC works to implement and ensure the success of selected initiatives recommended by external advisory bodies such as the National Research Council and the Science Advisory Board, as well as others such as the Congress, industry and environmental groups, and Agency staff. In this way, the SPC provides guidance for selected EPA scientific policies and decisions.

Structure:

The Science Policy Council is chaired by the EPA Science Advisor and comprised of senior managers from EPA Programs, Regions and Laboratories. The SPC is supported by a Steering Committee of Agency managers and scientific staff, ad hoc working groups formed to study specific topics, and the Risk Assessment Forum. A small staff positioned in the Office of Science Advisor supports the SPC and its Steering Committee.

The EPA Science Advisor, established by the former Administrator Christie Whitman in May 2002, is responsible for ensuring the availability and use of the best science to support Agency policies and decisions. In addition, the Science Advisor advises the EPA Administrator on science and technology issues and their relationship to Agency policies, procedures, and decisions. The EPA Science Advisor chairs the Agency's Science Policy Council.

Current Activities:

To date, the SPC has undertaken several important initiatives at EPA, and their work is well documented at the SPC web site (http://epa.gov/osa/spc/htm/2about.htm. However, some of their major initiatives include:

- Supporting and expanding EPA's Peer Review process;
- Issuing guidance and policies on risk characterization, probabilistic analysis in risk assessment, and evaluating risks to children;
- Developing the Agency's framework for Cumulative Risk Assessment and the Agency's interim position on endocrine disrupting chemicals; and
- Providing guidance on economic valuation of ecological risks.

U.S. EPA Indian Program Policy Council Description

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Mission and Purpose:

The U.S. Environmental Protection Agency's (EPA's) Indian Program Policy Council (IPPC) was formed in 2003. The mission of the Indian Program Policy Council (IPPC) is to advise and support the Agency on major policy, science, and implementation issues affecting EPA programs and activities in order to enhance protection of the environment and human health in Indian Country. The goal of the IPPC is to ensure early and effective involvement of EPA senior management, including:

- Creating a common understanding of tribal activities and issues among Programs and Regions;
- Serving as a forum for discussing Agency-wide issues affecting Indian Country;
- Strengthening intra-agency coordination and promote cohesive, consistent programmatic support regarding tribal activities;
- Promoting multi-media, multi-office solutions to environmental problems in Indian Country;
- Discussing inter-agency issues of concern and promoting inter-agency coordination and solutions to environmental problems in Indian Country;
- Addressing specific issues identified by IPPC members; and
- Providing for Agency-wide consideration of environmental problems in Indian Country, development of an integrated approach to address these problems, and oversight of the implementation of a long-term, integrated Indian program plan.

Structure:

The IPPC is comprised of two components, the Council itself and a Steering Committee. The Council consists of senior EPA management representatives to the Tribal Operations Committee (TOC) (excluding the Administrator and Deputy Administrator), or their Senior Executive Service-level designees. The Council is co-chaired by the TOC representatives from the Office of Water, and the Deputy Regional Administrator of the Lead Region for the Indian Program. The IPPC Steering Committee consists of one representative of each member of the Council and is chaired by the Director of the American Indian Environmental Office. Steering Committee representatives are selected by Council members to represent and speak on behalf of the Council members' Program Office.

Current Activities:

The IPPC has identified several key issue on which to initially focus, including: (1) EPA's Agency/tribal strategic plan, which reassesses its Indian Program; (2) tribal consultation; (3) training; (4) working with tribal colleges; (5) direct implementation of tribal cooperative agreements; (6) the tribal portal; and (7) Tribal Traditional Lifeways.

Regarding Tribal Traditional Lifeways, the IPPC is working to establish a collective, multi-media Agency approach and determine what additional efforts are needed that will allow the Agency to consider Tribal Traditional Lifeways when conducting scientific analyses, including risks; developing and implementing

environmental programs and regulations; and making-decisions that protect human health and the environment in Indian Country. The IPPC has designated the National EPA-Tribal Science Council (TSC) as the lead group for Tribal Traditional Lifeways.